

**C. Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-22 (canceled)

Claim 23 (new): A method for determining a parameter of interest of a subsurface region of earth formations comprising:

- (a) obtaining seismic survey information about the subsurface region;
- (b) identifying a plurality of interpreted seismic horizons of interest from the obtained survey information;
- (c) obtaining estimated seismic velocities corresponding to at least one interval between at least one pair of said plurality of seismic horizons;
- (d) calibrating the estimated seismic velocities to the parameter of interest; and
- (e) using the results of said calibration and the obtained seismic velocities to obtain the parameter of interest at any location within the seismic survey.

Claim 24 (new): The method of claim 23 wherein the parameter of interest is selected from the group consisting of:

- (i) fluid pressure;
- (ii) effective stress; and
- (iii) excess pressure, defined as the difference between the actual fluid pressure and the normal pressure for the same depth.

Claim 25 (new): The method of claim 24 further comprising using the parameter of interest for performing further analysis at the scale of a specific well

location, defined as a projected one-dimensional path that will be used to place a wellbore into the subsurface.

Claim 26 (new): The method of claim 23 further comprising displaying the parameter of interest in a graphical display.

Claim 27 (new): A method for determining a parameter of interest of a subsurface region of earth formations comprising:

- (a) obtaining seismic survey information about the subsurface region;
- (b) obtaining estimated seismic velocities corresponding to at least one interval of the subsurface from:
  - (i) normal moveout (NMO) velocity analysis of S-wave seismic data,
  - (ii) analysis of P-wave data from vertical seismic profiling (VSP) data,
  - (iii) analysis of P-wave data from inversion of VSP look-ahead data,
  - (iv) analysis of S-wave data from vertical seismic profiling (VSP) data,  
and
  - (v) analysis of S-wave data from inversion of VSP look-ahead data;
- (c) calibrating the estimated seismic velocities to the parameter of interest;  
and
- (d) using the results of said calibration and the obtained seismic velocities to obtain the parameter of interest at any location within the seismic survey.

Claim 28 (new): The method of claim 27 wherein the parameter of interest is selected from the group consisting of:

- (i) fluid pressure;
- (ii) effective stress; and

- (iii) excess pressure, defined as the difference between the actual fluid pressure and the normal pressure for the same depth.

Claim 29 (new): The method of claim 27 further comprising using the parameter of interest to perform further analysis at the scale of a specific well location, defined as a projected one-dimensional path that will be used to place a wellbore into the subsurface.

Claim 30 (new): The method of claim 27 further comprising displaying the parameter of interest in a graphical display.

Claim 31 (new): A method for determining fluid pressure in a subsurface region of earth formations comprising:

- (a) obtaining seismic survey information about the subsurface region;
- (b) identifying a plurality of interpreted seismic horizons of interest from the obtained survey information;
- (c) obtaining estimated seismic velocities corresponding to at least one interval between at least one pair of said plurality of seismic horizons;
- (d) calibrating the estimated seismic velocities to the parameter of interest; and
- (e) using the results of said calibration and the obtained seismic velocities to obtain the parameter of interest at any location within the seismic survey.

Claim 32 (new): A method for determining fluid pressure in a subsurface region of earth formations comprising:

- (a) obtaining seismic survey information about the subsurface region;
- (b) obtaining estimated seismic velocities corresponding to at least one interval of the subsurface from:

- (i) normal moveout (NMO) velocity analysis of S-wave seismic data,
  - (ii) analysis of P-wave data from vertical seismic profiling (VSP) data,
  - (iii) analysis of P-wave data from inversion of VSP look-ahead data,
  - (iv) analysis of S-wave data from vertical seismic profiling (VSP) data,  
and
  - (v) analysis of S-wave data from inversion of VSP look-ahead data;
- (c) calibrating the estimated seismic velocities to the parameter of interest;  
and
- (d) using the results of said calibration and the obtained seismic velocities to obtain the parameter of interest at any location within the seismic survey.